



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/735,505 | 12/12/2003 | Brock Estel Osborn | 124128-1 | 1898 |
| 6147 | 7590 | 10/04/2007 | EXAMINER | |
| GENERAL ELECTRIC COMPANY GLOBAL RESEARCH PATENT DOCKET RM. BLDG. K1-4A59 NISKAYUNA, NY 12309 | | | MUSA, ABDELNABI O | |
| | | ART UNIT | PAPER NUMBER | |
| | | 2146 | | |
| | | MAIL DATE | DELIVERY MODE | |
| | | 10/04/2007 | PAPER | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/735,505 | OSBORN ET AL. |
| | Examiner | Art Unit |
| | Abdelnabi O. Musa | 2109 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 12 December 2003.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-30 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-30 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 12 December 2003 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>12 December 2003</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The instant application having Application No 12/12/2003 has a total of 30 claims pending in the application; there are 4 independent claims and 26 dependent claims, all of which are ready for examination by the examiner.

Oath/Declaration

2. The applicant's oath/declaration has been reviewed by the examiner and is found to conform to the requirements prescribed in 37 C.F.R. 1.63.

Information Disclosure Statement

3. As required by M.P.E.P. 609(C), the applicant's submissions of the Information Disclosure Statements dated December 12, 2003. Is acknowledged by the examiner and the cited references have been considered in the examination of the claims now pending. As required by M.P.E.P 609 C (2), a copy of the PTOL-1449 initialed and dated by the examiner is attached to the instant office action.

Title

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Drawings

5. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, managing unites within the system must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

6. The drawings are objected to because the unlabeled rectangular box (es) shown in the drawings (figures 1, 2 and 3) should be provided with descriptive text labels.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) The invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application

Art Unit: 2146

filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claim(s) 1-5, 9-17 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Geivin et al. Patent No.: (US 7,020,701 B1).

As per claim 1, Geivin et al. teaches an apparatus for monitoring the performance of a distributed system (an apparatus for monitoring and controlling the performance of a distributed system; Abstract; Col. 6, Line 52; Col. 14, line 10; Col. 24, Line 44), said distributed system comprising a plurality of cooperating units disposed in a communications network (application in transportation, health care systems and others contain a plurality of units; Abstract; Col. 3, Line 9; Col. 6, line 54), wherein said apparatus comprises:

à plurality of diagnostic components, wherein each unit of said system comprises at least one of said diagnostic components, and wherein each diagnostic component further comprises (a plurality of diagnostic components are used in each unit to read and observe algorithms and situations of each unit Col. 38, line 12; Col. 66, line 5; Col. 73, Line 14; Col. 18, Line 13)

a. at least one sensor for sensing at least one unit performance characteristic and representing said at least one characteristic as raw data (a sensor for gathering information about a unit performance Col. 1, Line 47; Col. 2, Line 38; Col. 4, Line 7; Col. 7, line 28; FIGs. 3-7);

b. a data reduction module adapted to receive and process said raw data

Art Unit: 2146

produced by said at least one sensor to generate reduced data (data reduction to generate reduced data and improve performance Col. 54, Line 2; Col. 52, Line 58);

c. a transceiver adapted to receive said reduced data from said data reduction module and to transmit and receive said reduced data to and from said plurality of units using said network (frequency hopped spread spectrum transceivers are employed to receive and transmit data from unites Col. 25, Line 13; Col. 4, Line 43; Col. 59, Line 3 and respective FIGs); and

d. a data analysis module adapted to accept and analyze said reduced data from said transceiver to produce performance data related to said distributed system (data analysis module a mechanism that enables code execution to process data and produce performance Col. 17, Line 37; Col. 22, line 61)

As per claim 2, Geivin et al. teaches the apparatus of claim 1, wherein said data analysis module utilizes said performance data to estimate a remaining lifetime of said distributed system (data analysis estimate the lifetime of the system in different levels of the database Col. 34, Line 64; Col. 37, Line 33; Col. 51, Line 30; Col. 65, Line 47).

As per claim 3, Geivin et al. teaches the apparatus of claim 1, wherein each said diagnostic component further comprises at least one user interface module adapted to receive said system performance data from said data analysis module (module interface Col. 23, Line 4-21) for communicating said system performance data of said distributed system to a user (a user interface for communication between units performance and the user Col. 13, line 40; Col. 4, Line 22; Col. 24, line 28; FIGs. 2-5, 7 and there respective details).

As per claim 4, Geivin et al. the apparatus of claim 1, wherein at least one unit of said plurality of units further comprises a publish/subscribe server (PSS), and wherein said transceiver is adapted to communicate with said PSS to manage data flow on said network (server is used for communication between units Col. 24, Line 18; Col. 32, Line 25; see FIGs. 8, 21 and respective details)

As per claim 5 Geivin et al. the apparatus of claim 1, wherein said plurality of units comprises a plurality of transformers (plurality of data transformation to buffers and processors Col. 25, line 29; Col. 16, Line 21)

As per claim 9 Geivin et al. the apparatus of claim 1, wherein said at least one performance characteristic is selected to measure the security of said units (measurements are used to find security methods to units in the system Col.1, Line 47; Col. 3, Line 46; Col. 36, Line 4).

As per claim 10 Geivin et al. the apparatus of claim 9, wherein said units comprise passenger airliners, and wherein said at least one performance characteristic is at least one of altitude, rate of altitude change, position, deviation from flight plan, velocity, and rate of velocity change (measurements are done to indicate performance Col. 41, Line 43; Col. 4, Line 15).

As per claim 11 Geivin et al. the apparatus of claim 1, wherein said network comprises a wireless network (wireless network nodes, wireless integrated network Col. 2, Line 22; Col. 3, Line 20, Col. 11, Line 10).

As per claim 12 Geivin et al. the apparatus of claim 11 wherein said wireless network is selected from the group consisting of radio waves, wireless LAN's, satellite

Art Unit: 2146

networks and mobile telecommunications systems (radio frequency/communication, wireless LAN, satellite communication Col. 5, line 31; Col. 10, Line 37; Col. 68, Line 31; Col. 13, Line 53; FIG. 29).

As per claim 13 Geivin et al. the apparatus of claim 11, wherein said wireless network is configured to support communication among at least one active subset of said plurality of units, wherein said active subset comprises a subset of said plurality of units comprising said distributed system that are actively in cooperation and communication with each other. (a multi-cluster network to allow each subset of the communication network to cooperate with another, cooperative communication Col. 29, Line 27; Col. 17; FIGs. 3, 9. 26-30)

As per claim 14 Geivin et al. the apparatus of claim 1, wherein said network comprises a wired network (a plurality of wired networks is used among the communications Col. 14, Line 61)

As per claim 15 Geivin et al. the apparatus of claim 14, wherein said wired network is connected by a communications medium selected from the group consisting of metallic wire cables, fiber optic cables and Ethernets (communications among units in the sired network comprises twisted pair, fiber optic, and Ethernet cables Col. 19, Line 3-16; Col. 67, Line48-67).

As per claim 16 Geivin et al. the apparatus of claim 1, wherein said network is configured to be accessible via the Internet (resources of the distributed network are accessible through the internet, Abstract; Col. 1, Line 44; Col. 6, Line 28 FIGs. 12-13)

Art Unit: 2146

As per claim 17 Geivin et al. the apparatus of claim 1, wherein said at least one sensor of said diagnostic component is selected from the group consisting of chemical sensors, biological sensors, electrochemical sensors, mechanical sensors, vibration sensors, stress sensors, thermal sensors, environmental sensors and financial performance sensors (multiple types of sensors are used among variety of system to estimate the performance of units Col. 51, Line 22).

As per claim 30 Geivin et al the apparatus of claim 28, wherein said distributed system comprises a plurality of security systems monitoring the security of an area, and wherein said performance characteristic is at least one of open door sensor status signals, fire sensor signals, water pressure sensor signals (multiple types of sensors are used among variety of system to estimate the performance of units Col. 51, Line 22), structural displacement signals, personnel inspection alert signals, baggage inspection alert signals, and security personnel alert signals (alert functions Col. 19, Line 19).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2146

8. Claim(s) 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Geivin et al. Patent No.: (US 7,020,701 B1) as applied to claim(s) 5, 1 respectively above, and further in view of Mikurak Patent No.: (US 6,671,818 B1)

Geivin et al teaches all of the claimed limitations and further teaches multiple type of sensors in the system to estimate the performance of units and further teaches that the system can be sued in various engines, machines but does not teach a combustion engine neither a gas byproduct sensor. However, Mikurak teaches a plurality of sensors to obtain a plurality of measurements to read outputs from many different devices and further teaches collecting data from engines and turbines via aircraft engines, trains and various machines.

It would have been obvious to a person having ordinary skilled in the art at the time the invention was mad to have modified Geivin et al. by the teaching of Mikurak because multiple types of sensors used to read systems and machines have to include a liquid, air, pressure, and gas sensors to effectively have the system running efficiently. Also, combustion engines are included in aircraft, trains and other machinery.

9. Claim(s) 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Geivin et al. Patent No.: (US 7,020,701 B1) as applied to claim(s) 5, 7 respectively above, and further in view of Mikurak Patent No.: (US 6,671,818 B1)

Geivin et al teaches all of the claimed limitations and further teaches data reduction method applied to raw data and data analysis module of the diagnostic components adapted to the process but does not teach any statistical method applied to the neither raw data nor correlations techniques to specify and estimate values to units

throughout the system. However, Mikurak teaches multiple statistical techniques and correlations methods operated on raw data to estimate a correlation value and trend analysis to units adapted to the process (Col. 70, line 23; Col. 150, line 5).

It would have been obvious to a person having ordinary skilled in the art at the time the invention was mad to have modified Geivin et al. by the teaching of Mikurak because to operate such sensors and get the estimated values for performance improvement, one must apply a statistical method to estimate those values and have the data reduced as applied to a particular system.

10. Claims 20, 21-30 are related to the same limitation set for hereinabove, where the difference used is the phrase order and word interchanged within the claims itself. The citations from the prior art has been inserted where's necessary. Furthermore, the wordings of the claims were interchanged within the claim itself and this change does NOT effect the limitation of the above treated claims. The claim's limitations are repeated in many claims throughout the application. Even in the above treated claims many of the statements were just repeated from previously written claims within the application. Even though claims 20, 21-30 have been differently written from the above treated claims, yet the limitations did not change. As mentioned, claim 20 is the same as claim 1 where as part e. of the claim is the same as claim 3, claim 21 is the same as claim 1 where as the claim was taken from the limitation of claim 1, claim 22 is the same as claim 3, claim 23 is the same as claim 5, claim 24 is the same as claim 6, claim 25 is the same as claim 11, claim 26 is the same as claim 18, claim 27 is the same as claim 19, claim 28 is the same as claim 1 whereas the last part of the claim is claimed in claim

Art Unit: 2146

9, claim 29 is the same as claim 10, again there are no difference in limitations between claims 22-25, and the above treated claims respectively.

Conclusion

The following prior art made of record and not relied upon is cited to establish the level of skill in the applicant's art and those arts considered reasonably pertinent to applicant's disclosure. See **MPEP 707.05(c)**.

The following are analogous art because they are from the same field of endeavor:

- US-4259548
- US-6964040
- US-6549864
- US-6424930
- US-6182048

The examiner requests, in response to this Office action, support should be shown for language added to any original claims on amendment and any new claims. That is, indicate support for newly added claim language by specifically pointing to page(s) and line(s) in the specification and/or drawing figure(s). This will assist the examiner in prosecuting the application.

When responding to this office action, Applicant is advised to clearly point out the patentable novelty which he or she thinks the claims present, in view of the state of the

Art Unit: 2146

art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections See 37 CFR 1.111(c).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdelnabi O. Musa whose telephone number is 571-2701901. The examiner can normally be reached on Monday Thru Friday: 7:30am to 5:00pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Pwu can be reached on 571-2726798. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A.M



JEFFREY PWU
SUPERVISORY PATENT EXAMINER